

INDUSTRIAL FISHERY INVESTIGATIONS

The industrial fishery of New England harvests the entire catch of the otter trawl. Food species are sorted out of the catch and all others are sold for reduction. The industrial product is a major source of protein and growth factors in various livestock (especially chicken) feed.

This fishery represents the nearest approximation to date of a total harvesting of the useable marine resource. As such it presents unique problems and opportunities for study.

At present, sufficient life history data on the species involved is not available to suggest appropriate management measures. A vast body of data is accumulating as a result of our research on the fishery that provides a unique avenue of approach to other general and fundamental problems concerned with the ecology of fish communities. Such studies are being undertaken as our file of data becomes sufficiently comprehensive.

August 6, 1959

SUMMARY CONTINUED SCHEDULE

Investigation: Industrial
Biological Laboratory: Woods Hole, Mass.

Project Title		Est.* Cost	Fiscal Years									
			57	58	59	60	61	62	63	64	65	66
1.	Species composition of the Cape Cod to Cape Hatteras continental shelf groundfish	71.6	18.1	12.3	12.7	10.0	8.0	10.5	--	--	--	--
2.	A review of the structure and ecology of the groundfish communities in the Middle Atlantic	58.1	17.6	2.0	11.0	9.6	7.9	--	--	--	--	--
3.	Development of sampling theory	50.0	--	11.0	10.5	9.6	7.9	11.0	--	--	--	--
4.	The relationship of water temperature to fish abundance	71.0	--	11.0	10.5	9.6	7.9	11.0	10.5	10.5	--	--
5.	A study of possible management techniques for the industrial fishery	82.6	--	--	--	--	9.0	12.0	14.2	13.7	16.8	16.9
6.	History and development of industrial fishery at Point Judith and biology of species involved--a summation	51.1	--	--	--	--	--	--	10.4	11.5	14.8	14.4
7.	Species composition of the industrial landings	141.4	17.1	14.0	13.0	9.4	9.9	13.3	13.9	14.4	17.8	18.6

*Total needed by Laboratory for Project in thousands of dollars.

In view of limitations on the type and number of projects, the priority of the project should be of immediate importance.

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Sheet No. 1

U. S. Fish and Wildlife Service
Bureau of Commercial Fisheries

Location: Woods Hole, Mass.

Date: August 6, 1959

File No.

Research Project Outline

Title of Project: Species composition of the Cape Cod to Cape Hatteras groundfish.

Investigation Title: Industrial Investigation.

Investigation Chief: R. L. Edwards

Project Leader:	<u>R. L. Fritz</u>	<u>FRB</u>	<u>GS-9</u>
	Name	Title	Grade

Assistants: (Title and Grade)

<u>W. Callahan</u>	<u>Stat. Clerk</u>	<u>GS-5</u>
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Collaborators:

Need for Information: A more adequate understanding of the number of species present along the continental shelf and their abundance is required, in view of the expanding trawl fishery and our new responsibilities in evaluating the effects of waste disposal.

Objective: To develop and maintain as complete records as possible of the Middle Atlantic fishery, including data on effort, area of capture and species composition.

Method of Procedure: Interviewing and sampling at the ports.

Phase 1:

Phase 2:

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Sheet No. 2

File No.:

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project 71.6

	FY <u>1959</u>	FY <u>1960</u>	FY <u>1961</u>
Personal Services	<u>1.6</u>	<u>7.1</u>	<u>1.5</u>
Other Expenses:			
Within Project	<u>2.0</u>	<u>1.1</u>	<u>0.5</u>
Lab. Adm. & Ser.	<u>9.1</u>	<u>1.8</u>	<u>6.0</u>
Lab. Total	<u>12.7</u>	<u>10.0</u>	<u>8.0</u>
Regional Office	<u>.127</u>	<u>.10</u>	<u>.08</u>
Washington Office			
Total			

Recommended Source of Funds S-K and Regular
 (S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY; Phase 2 FY; Phase 3 FY; Project FY 62

Recommended by: _____ Date _____

Originator R. L. Edwards 8/6/59

Investigation Chief R. L. Edwards 8/6/59

Laboratory Director Herbert W. Graham 8/6/59

Regional Director Joseph F. Penner 8/19/59

Branch Chief JHE 12-24-59

Approved by: _____

Division Chief for Director W. H. H. 1-4-60

Remarks

(Continue on reverse side)

#715 7/9/59

Sheet No. 1

U. S. Fish and Wildlife Service
Bureau of Commercial Fisheries

Location: Woods Hole, Mass.
Date: August 6, 1959
File No.

Research Project Outline

Title of Project: Review of the structure and ecology of the groundfish communities in the Middle Atlantic.

Investigation Title: Industrial Investigation

Investigation Chief: R. L. Edwards

Project Leader:	<u>R. L. Edwards</u>	<u>FRB</u>	<u>GS-12</u>
	Name	Title	Grade

Assistants: (Title and Grade)

Collaborators:

Need for Information: An understanding of the relations of the groundfish communities to differences in environmental conditions in prerequisite to determining the effects of changes in environmental conditions.

Objective: To determine the interspecific and environmental relations of groundfish communities.

Method of Procedure: Data collection on survey cruises.

Phase 1:

Phase 2:

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project 58.1

	<u>FY 1959</u>	<u>FY 1960</u>	<u>FY 1961</u>
Personal Services	<u>1.0</u>	<u>2.0</u>	<u>1.5</u>
Other Expenses:			
Within Project	<u>1.0</u>	<u>0.5</u>	<u>0.5</u>
	<u>--</u>	<u>--</u>	<u>--</u>
Lab. Adm. & Ser.	<u>9.0</u>	<u>7.1</u>	<u>5.9</u>
Lab. Total	<u>11.0</u>	<u>9.6</u>	<u>7.9</u>
Regional Office	<u>.11</u>	<u>.096</u>	<u>.079</u>
Washington Office	<u> </u>	<u> </u>	<u> </u>
Total	<u> </u>	<u> </u>	<u> </u>

Recommended Source of Funds S-K and Regular
 (S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY ; Phase 2 FY ; Phase 3 FY ; Project FY 61

Recommended by:

		<u>Date</u>
Originator	<u>R. L. Edwards</u>	<u>8/6/59</u>
Investigation Chief	<u>R. L. Edwards</u>	<u>8/6/59</u>
Laboratory Director	<u>Herbert W. Graham</u>	<u>8/6/59</u>
Regional Director	<u>Joseph F. Dunnecker</u>	<u>8/19/59</u>
Branch Chief	<u>2/10/60</u>	<u>12-24-59</u>
Approved by:		
Division Chief for Director	<u>J. H. H.</u>	<u>1-4-60</u>

Remarks

(Continue on reverse side)

U. S. Fish and Wildlife Service
Bureau of Commercial Fisheries

Sheet No. 1

Location: Woods Hole, Mass.
Date: August 6, 1959
File No.

Research Project Outline

Title of Project: Development of sampling theory

Investigation Title: Industrial Investigation

Investigation Chief: R. L. Edwards

Project Leader:	<u>J. S. O'Connor</u>	<u>(Fishery Aide - Summer Student and Grad. Asst)</u>	<u>GS-4</u>
	Name	Title	Grade

Assistants: (Title and Grade)

R. L. Edwards, Fishery Research Biologist, GS-12

Collaborators:

Dr. Saul Saila, Marine Laboratory, University of Rhode Island, (Phd
sponsor of Mr. O'Connor

Need for Information: Present sampling procedures are based on tentative
validation procedures. What is required is a firm statistical basis for the
estimation of the level of precision and amount of bias in the sampling method.

Objective: To validate industrial sampling procedures.

Method of Procedure: Extended sampling and critical statistical analysis
of samples for the effects that bias sampling and the precision
Phase 1: of species composition estimates.

Phase 2:

Industrial - 3

Sheet No. 2

File No.:

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project 50.0

	<u>FY 1959</u>	<u>FY 1960</u>	<u>FY 1961</u>
Personal Services	<u>1.0</u>	<u>2.0</u>	<u>1.5</u>
Other Expenses:			
Within Project	<u>0.5</u>	<u>0.5</u>	<u>0.5</u>
Lab. Adm. & Ser.	<u>9.0</u>	<u>7.1</u>	<u>5.9</u>
Lab. Total	<u>10.5</u>	<u>9.6</u>	<u>7.9</u>
Regional Office	<u>.105</u>	<u>.096</u>	<u>.079</u>
Washington Office			
Total			

Recommended Source of Funds S-K and Regular
 (S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY 58; Phase 2 FY; Phase 3 FY; Project FY 62

Recommended by: R. L. Edwards 8/6/59 Date

Originator R. L. Edwards 8/6/59

Investigation Chief R. L. Edwards 8/6/59

Laboratory Director Herbert W. Graham 8/6/59

Regional Director Joseph F. Pomeroy 8/19/59

Branch Chief JHE 12-24-59

Approved by: MEH 1-7-60

Division Chief for Director MEH 1-7-60

Remarks

(Continue on reverse side)

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U. S. Fish and Wildlife Service
Bureau of Commercial Fisheries

Sheet No. 1

Location: Woods Hole, Mass.
Date: August 6, 1959
File No.

Research Project Outline

Title of Project: The relation of water temperature to fish abundance

Investigation Title: Industrial Investigation

Investigation Chief: R. L. Edwards

Project Leader: <u>R. L. Edwards, Fishery Research Biologist.</u>	<u>GS-12</u>
Name	Grade

Assistants: (Title and Grade)

Collaborators:

Need for Information: This information will aid in understanding and predicting the relative abundance of various species on the fishing grounds as a function of temperature.

Objective: To specify the effects of the changes in water temperature on fish abundance.

Method of Procedure: To collect hydrographic information along with fishing operations.

Phase 1:

Phase 2:

Industrial - 4

Sheet No. 2

File No.:

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project			<u>71.0</u>
	<u>FY 1959</u>	<u>FY 1960</u>	<u>FY 1961</u>
Personal Services	<u>1.0</u>	<u>2.0</u>	<u>1.5</u>
Other Expenses:			
Within Project	<u>0.5</u>	<u>0.5</u>	<u>0.5</u>
	<u>--</u>	<u>--</u>	<u>--</u>
Lab. Adm. & Ser.	<u>9.0</u>	<u>7.1</u>	<u>5.9</u>
Lab. Total	<u>10.5</u>	<u>9.6</u>	<u>7.9</u>
Regional Office	<u>.105</u>	<u>.096</u>	<u>.079</u>
Washington Office	<u></u>	<u></u>	<u></u>
Total	<u></u>	<u></u>	<u></u>

Recommended Source of Funds S-K and Regular
(S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY 58; Phase 2 FY; Phase 3 FY; Project FY 64

Recommended by:		<u>Date</u>
Originator	<u>R. L. Edwards</u>	<u>8/6/59</u>
Investigation Chief	<u>R. L. Edwards</u>	<u>8/6/59</u>
Laboratory Director	<u>Herbert W. Graham</u>	<u>8/6/59</u>
Regional Director	<u>Joseph G. Duncanson</u>	<u>8/19/59</u>
Branch Chief	<u>JHE.</u>	<u>12-24-59</u>
Approved by:		
Division Chief for Director	<u>Wlett</u>	<u>1-4-60</u>

Remarks

(Continue on reverse side)

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U. S. Fish and Wildlife Service
Bureau of Commercial Fisheries

Sheet No. 1

Location: Woods Hole, Mass.
Date: August 6, 1959
File No.

Research Project Outline

Title of Project: The study of possible management techniques for the industrial fishery

Investigation Title: Industrial Investigation

Investigation Chief: R. L. Edwards

Project Leader: R. L. Edwards, Fishery Research Biologist, GS-12

Name

Title

Grade

Assistants: (Title and Grade)

Collaborators:

Need for Information: To develop background of knowledge on the effects of the application of possible management techniques on a multispecies fishery.

Objective: To determine the effect of various management techniques on the industrial fishery.

Method of Procedure: To analyze management techniques used in other fishery projects and the development of new methods applicable to the industrial fishery if necessary. Statistical techniques and mathematical model studies required.

Phase 2:

Industrial - 5

Sheet No. 2

File No.:

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project			<u>82.6</u>
	<u>FY 1959</u>	<u>FY 1960</u>	<u>FY 1961</u>
Personal Services	<u>--</u>	<u>--</u>	<u>2.0</u>
Other Expenses:			
Within Project	<u>--</u>	<u>--</u>	<u>1.5</u>
	<u>--</u>	<u>--</u>	<u>--</u>
Lab. Adm. & Ser.	<u>--</u>	<u>--</u>	<u>5.5</u>
Lab. Total	<u>--</u>	<u>--</u>	<u>9.0</u>
Regional Office	<u> </u>	<u> </u>	<u>.09</u>
Washington Office	<u> </u>	<u> </u>	<u> </u>
Total	<u> </u>	<u> </u>	<u> </u>

Recommended Source of Funds S-K and Regular
(S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY 61; Phase 2 FY; Phase 3 FY; Project FY 66+

Recommended by:

Originator	<u>R. L. Edwards</u>	Date	<u>8/6/59</u>
Investigation Chief	<u>R. L. Edwards</u>		<u>8/6/59</u>
Laboratory Director	<u>Herbert W. Graham</u>		<u>8/6/59</u>
Regional Director	<u>Joseph F. Pinner</u>		<u>8/19/59</u>
Branch Chief	<u>244E</u>		<u>12-24-59</u>
Approved by:			
Division Chief for Director	<u>W. H. H.</u>		<u>1-4-60</u>

Remarks

(Continue on reverse side)

Sheet No. 1

U. S. Fish and Wildlife Service
Bureau of Commercial Fisheries

Location: Woods Hole, Mass.
Date: August 6, 1959
File No.

Research Project Outline

Title of Project: Species composition of Industrial fish landings(Annual Report)

Investigation Title: Industrial

Investigation Chief: R. L. Edwards

Project Leader:	<u>L. M. Lawday</u>	<u>FA</u>	<u>GS-5</u>
	Name	Title	Grade

Assistants: (Title and Grade)

<u>R. L. Edwards</u>	<u>FRB</u>	<u>GS-12</u>
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Collaborators:

Need for Information: To provide industrial fishery industry with catch composition data that may be used in planning operations.

Objective: To define as well as possible, the species composition of industrial landings.

Method of Procedure: Annual data report

Phase 1: Port sampling
Statistical analysis at W.H. Lab

Phase 2:

Industrial - 7

Sheet No. 2

File No.:

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project 141.4

	<u>FY 1959</u>	<u>FY 1960</u>	<u>FY 1961</u>
Personal Services	<u>2.0</u>	<u>2.0</u>	<u>2.0</u>
Other Expenses:			
Within Project	<u>2.0</u>	<u>0.3</u>	<u>2.5</u>
	<u>--</u>	<u>--</u>	<u>--</u>
Lab. Adm. & Ser.	<u>9.0</u>	<u>7.1</u>	<u>5.4</u>
Lab. Total	<u>13.0</u>	<u>9.4</u>	<u>9.9</u>
Regional Office	<u>.13</u>	<u>.094</u>	<u>.099</u>
Washington Office	<u> </u>	<u> </u>	<u> </u>
Total	<u> </u>	<u> </u>	<u> </u>

Recommended Source of Funds S-K and Regular
 (S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY; Phase 2 FY; Phase 3 FY; Project FY 66+

Recommended by:

		<u>Date</u>
Originator	<u>R. L. Edwards</u>	<u>8/6/59</u>
Investigation Chief	<u>R. L. Edwards</u>	<u>8/6/59</u>
Laboratory Director	<u>Herbert W. Graham</u>	<u>8/6/59</u>
Regional Director	<u>Joseph F. Penner</u>	<u>8/19/59</u>
Branch Chief	<u>WHE.</u>	<u>12-24-59</u>
Approved by:	<u> </u>	<u> </u>
Division Chief for Director	<u> </u>	<u>1-4-60</u>

Remarks

(Continue on reverse side)

#715 7/9/59